

Remarks

These remarks are responsive to the Office action dated January 13, 2010. Prior to entry of this response, claims 1-5, 7-12, 14 and 19-26 were pending in the application. By this response, claims 1, 9, 12, 14, 25, and 26 are amended and claims 27-28 are added. Applicants respectfully request reconsideration of the application and allowance of the pending claims.

Cited Art

The Action cites:

1. Brown et al., U.S. Patent No. 5,557,686 (hereinafter "Brown");
2. Matchett, U.S. Patent No. 5,229,764 (hereinafter "Matchett");
3. Akiyama et al., U.S. Patent No. 5,768,387 (hereinafter "Akiyama"); and
4. Boebert et al., U.S. Patent No. 5,596,718 (hereinafter "Boebert").

Rejections under 35 U.S.C. § 103

Claims 1-2, 4-5, 7-12, 14, and 19-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Brown in view of Matchett and further in view of Akiyama. This rejection is traversed.

Independent Claim 1

Amended independent claim 1 recites, in part,

A behavioral biometrics-based user verification system for use with a mouse input device, said system comprising:

a data interception unit configured to intercept inputs from a user that are directed to an application, wherein the data interception unit is configured to passively collect mouse data generated in response to the user, the mouse data including mouse movement data or mouse click data;

a behavior analysis unit operatively coupled to said data interception unit to receive the passively collected mouse data, and

a behavior comparison unit operatively coupled to said behavior analysis unit, wherein said system dynamically monitors and passively collects behavioral biometric information, and translates said behavioral biometrics information into representative data, stores and compares different results, and outputs a user identity result associated with authorization of the user.

The proposed Brown/Matchett/Akiyama combination fails to disclose at least these features and combination of features. As admitted by the Action, Brown fails to disclose

that the input device is a mouse and wherein the data interception unit is configured to passively collect mouse data generated in response to the user. Matchett fails to cure the deficiencies of Brown. Matchett is cited as disclosing “that the input device is a mouse and wherein the data interception unit is configured to passively collect mouse data generated in response to the user” at col. 13, lines 12-28 and Figure 11. Applicants respectfully disagree. Matchett discloses a computer mouse to which special-purpose thumbscanning and hand geometry reading hardware have been added to collect fingerprints and hand geometry. Matchett does not disclose “a data interception unit configured to intercept inputs from a user that are directed to an application, wherein the data interception unit is configured to passively collect mouse data generated in response to the user, the mouse data including mouse movement data or mouse click data” as recited in claim 1. Instead, Matchett discloses special purpose data (thumbscan or hand geometry data), and Matchett does not teach or suggest using mouse data such as mouse movement data or mouse click data intended for user applications for user authentication.

Akiyama fails to cure the deficiencies of Brown and Matchett. While Akiyama discloses collection of mouse data, this mouse data is collected in response to a menu screen presented to the user:

In the case where a mouse is used, a menu screen is caused to be displayed such as that shown in FIG. 12, and the tracks of the mouse movements on the menu screen may be detected, and the characteristics information may be a 45 function that shows the path of these tracks (refer to FIG. 8).

[Akiyama, col. 11, lines 42-46.] Akiyama does not disclose or suggest *passive* collection of mouse data, or how an identity result could be obtained based on such passive mouse data. The mouse data of Akiyama is collected for authentication, and is not communicated to a user application. For at least this reason, claim 1 and its dependent claims are properly allowable.

Independent Claim 9

Amended independent claim 9 recites a method of characterizing a user comprising the steps of:

receiving data associated with movement of a computer mouse at a user application;

passively intercepting at least a portion of the received data and forwarding the intercepted portion to a behavioral processing unit; processing the intercepted portion so as to develop a signature for a user.

The proposed Brown/Matchett/Akiyama combination fails to disclose all the features of claim 9. For example, Matchett discloses adding a thumbscanning sensor and a hand geometry sensor to a mouse. Matchett does not teach or suggest collecting actual mouse data, i.e., data generated by the mouse and received at a user application. While Akiyama discloses collection of mouse data, this collection is in response to a menu screen presented to the user, and thus Akiyama does not teach or suggest *passively* intercepting at least a portion of the received data as recited in claim 9. For at least this reason, claim 9 and its dependent claims are properly allowable.

Independent Claim 25

Amended independent claim 25 recites a behavioral biometrics-based user verification system for use with a mouse input device that comprises:

a data interception unit configured to intercept inputs from a user that are directed to a user application, wherein the data interception unit is configured to passively initiate collection of mouse data.

The proposed Brown/Matchett/Akiyama combination fails to disclose at least this feature of claim 25. Matchett discloses a mouse to which a thumbscanning sensor and a hand geometry sensor have been added. Matchett does not teach or suggest collecting actual mouse data, i.e., data generated by the mouse so as to move a mouse pointer and directed to a user application as claimed. Akiyama collects mouse data in response to a menu screen presented to a user, and thus does not teach or suggest *passively* initiating collection of mouse data. For at least these reasons, claim 25 is properly allowable.

Independent Claim 26

Amended independent claim 26 recites a behavioral biometrics-based user verification system for use with a mouse input device. The system comprises:

a data interception unit for receiving inputs from a user that are directed to a user application, wherein the data interception unit is configured to transparently collect mouse data generated in response to the user.

The proposed Brown/Matchett/Akiyama fails to disclose all the features of claim 26. Brown

fails to disclose a data interception unit “configured to *transparently* collect mouse data generated in response to the user.” Matchett fails to cure the deficiencies of Brown. Matchett discloses a mouse to which a thumbscanning sensor and a hand geometry sensor have been added. Matchett does not teach or suggest transparently collecting actual mouse data, i.e., data generated by the mouse so as to move a mouse pointer and directed to a user application as claimed. Akiyama does not teach or suggest *transparently* collecting mouse data but instead collects mouse data in response to a menu screen presented to a user. For at least these reasons, claim 26 is properly allowable.

Rejections under 35 U.S.C. § 103 in View of Brown, Matchett, Akiyama, and Boebert

Claim 3 is rejected as obvious from a combination of Brown, Matchett, Akiyama, and Boebert. This rejection is traversed. As claim 3 is properly allowable as dependent from allowable claim 1, this rejection is not belabored further.

New Claims 27-28

New claims 27-28 recite features that are lacking in the proposed Brown/Matchett/Akiyama/Boebert combination. For example, new claim 27 recites that “the behavior comparison unit is configured to produce the user identity result based on a histogram of mouse movement directions.” New claim 28 recites “wherein the signature for the user is developed based on a distribution of traveled distances.” Brown is silent concerning mouse data, and Matchett discloses data associated with thumbscanning or hand geometry. Akiyama discloses authentication data provided in response to a menu. Thus, new claims 27-28 are properly allowable over the cited Brown/Matchett/Akiyama/Boebert combination.

Conclusion

Applicants believe that this application is now in condition for allowance, in view of the above amendments and remarks. Accordingly, Applicants respectfully request that the Examiner issue a Notice of Allowability covering the pending claims. If the Examiner has any questions, or if a telephone interview would in any way advance prosecution of the application, please contact the undersigned attorney of record.


Please charge any cost incurred in the filing of this response, along with any other costs,
to Deposit Account No. 02-4550.

Respectfully submitted,

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